

30 ENVIRONMENT AND ENERGY

30.1 NAS Modernization Impact

NAS modernization will produce a series of expected environmental benefits, including fuel conservation, fewer FAA facilities, and more energy-efficient new facilities.

Air travel fuel conservation will reduce emissions of greenhouse gases and other pollutants. Estimates of reductions for the years through 2015 were developed for a projected fleet mix and projected traffic increases by phase of flight (e.g., en route) in the continental United States. Results indicate potential annual savings of over 10 billion pounds of fuel, over 200 million pounds of both nitrogen dioxide and carbon monoxide, and 60 million pounds of hydrocarbons, as compared to what would be used without NAS modernization.

The Global Positioning System (GPS) is expected to require fewer land-based navigation facilities. Thus, this land may be available for other uses, and less use of environmentally sensitive lands is expected. New facilities and equipment will generally be more energy-efficient, which will reduce FAA operating costs and emissions of greenhouse gases and other pollutants from these facilities.

Contaminated sites will be cleaned up during the decommissioning and disposal process. While some real property, equipment, and supplies may be preserved by the FAA or other organizations, much will be recycled or used for non-FAA purposes. With fewer land-based facilities, community controversy over aesthetics and electromagnetic fields may be avoided.

The NAS architecture demonstrates the FAA's leadership in meeting federal goals for sustainable development. Sustainable development is defined as "meet[ing] the needs of the present without compromising the ability of future generations to meet their own needs."¹

The United States committed itself to sustainable development at the 1992 United Nations Conference on Environment and Development in Rio de Janeiro and in the 1996 President's Council on Sustainable Development report, *Sustainable America: A New Consensus for Prosperity, Op-*

portunity, and a Healthy Environment for the Future. One of the key principles of sustainable development is that a healthy economy depends on healthy communities and a healthy environment for all. Through the NAS architecture, the FAA will foster safety in aviation, in tandem with federal goals for national security, economic growth, environmental health, and community needs.

The FAA has developed and is implementing specific mandated programs in the areas of environmental compliance, occupational safety and health compliance, and energy conservation. These programs apply to acquisition of new equipment and facilities and disposal of existing equipment and facilities.

In the decisionmaking process for siting, operating, and disposing of new FAA facilities, the FAA is required to consider the effects of proposed actions on the human environment by the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality (CEQ). The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences and take actions that protect, restore, and enhance the environment.

Although the primary consideration in modernizing the NAS is aviation safety, the NAS—to be acceptable to the public—must and will address other public concerns related to human health, welfare, and safety. These concerns about impacts on the human environment (both positive and negative) include noise changes, community disruption, relocation, surface and air traffic changes, changes to sensitive cultural and natural resources (e.g., preservation of wildlife refuges, National Parks, and bird sanctuaries), air and water quality, water and sewer demand, energy demand, aesthetics, site cleanup, and concerns about electromagnetic fields.

30.2 Environmental Compliance and Cleanup Program

The FAA recognizes the need to comply with all federal, state, and local environmental require-

1. *Our Common Future*, 1987 (Brundtland Report), United Nations World Commission for Environment and Development, 1987.

ments. The agency has moved forward with implementing the Hazardous Materials (HazMat) Management/Environmental Cleanup Program to systematically identify, evaluate, and remediate environmentally contaminated sites in the NAS (including site characterization, remediation plans/designs, cleanup activities, and monitoring). Programs include, but are not limited to, the fuel storage tanks, recycling and waste minimization, hazardous waste disposal, contamination assessment and cleanup, and polychlorinated biphenyl (PCB) programs.

30.3 Occupational Safety and Health Program

The mission of the Occupational Safety and Health (OS&H) program is to provide for the occupational safety and health of employees, prevent accidental loss of material resources, avoid facility interruptions due to accident or fire, and enforce a system of formal accountability. This is accomplished through regulatory compliance and program management principles. The program provides the comprehensive, agencywide occupational safety and health actions/activities (including fire life safety) necessary to ensure FAA compliance with federal mandates and negotiated agreements to integrate a philosophy regarding these areas of effort into the FAA culture and to promote a safe and healthful workplace.

This effort starts in the design phase of a system or project, thereby reducing the probability of retrofit or noncompliance, and continues throughout the entire life cycle. Significant parts of the programs are field-oriented and administered at the regional level. Some examples of mandated programs are the Lockout/Tagout, Fire Protection, Fire/Life Safety, Confined Space, Fall Protection, Hearing Conservation, Personnel Protective Equipment, Compressed Gas Safety, Hazard Communication, Training, Walking/Working Surfaces, and Housekeeping programs.

30.4 Energy Conservation

The Federal Energy Act and Executive Order 12902 require the FAA to reduce facility energy consumption to 1985 levels. Recent federal legislation also requires all federal agencies to use life-cycle costing analysis when procuring new systems in order to enhance the transition of new and efficient technologies into the workplace. The

FAA program will integrate “best available technologies” into acquisitions to improve system operability while reducing energy consumption. By monitoring utility resource expenditure savings, the FAA will be able to retain and reinvest the savings in the energy program’s future.

30.5 Property Transfer Environmental Liability

As in the private sector, federal agencies may be held liable for cleanup of site contamination as an owner or operator of a site under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). As a result, evaluating candidate properties for potential environmental contamination and liability has become one of the essential steps in real property transactions. Known in the FAA as the Environmental Due Diligence Audit (EDDA), this evaluation process applies whether acquiring, leasing, transferring, or terminating agency interest in real property. As the NAS architecture is realized, real property transactions—terminations or disposals of property in particular—will increase. To avoid long-term liability and ensure compliance with CERCLA and the Community Environmental Response Facilitation Act (CERFA), the FAA must conduct EDDAs, document hazardous waste activities, and clean up any contamination on real property transferred out of the Federal Government.

30.6 Research, Engineering, and Development

Protecting the environment poses the greatest single challenge to continued growth and prosperity of the aviation system. The FAA is committed to environmental stewardship of all programs, systems, and facilities in order to identify and correct environmental problems before they pose a threat to public welfare, employees, or the quality of the environment. Through an optimal mix of aircraft and engine certification standards, operational procedures, compatible land use, and abatement technology, the agency intends to reduce the impact of aircraft noise.

This will also minimize the impact of aircraft emissions and assist airports in applying practicable measures to avoid or minimize adverse impacts on air, soil, and water quality. The FAA’s Plan for Research, Engineering and Development

details the programs selected to ensure continued safety, security, capacity, efficiency, and an environmentally sound aviation system. The R,E&D Plan should be consulted for detailed information in this area.

The FAA and the National Aeronautics and Space Administration (NASA) have been working together on this issue. In 1995, the FAA and NASA administrators signed a memorandum of understanding (MOU) on airspace system users operational flexibility and productivity.

The MOU establishes an FAA/NASA interagency air traffic management integration product team (IAIPT) responsible for planning, oversight, and management of joint efforts. The principal defining documents for the IAIPT are the *Integrated Plan for ATM Research and Technology Development* and the IAIPT management plan.

30.7 Costs

The FAA's estimates for research, engineering, and development (R,E&D) and facilities and equipment (F&E) for environment and energy life-cycle costs associated with regulatory com-

pliance for 1998 through 2015 are shown in constant FY98 dollars in Figure 30-1. Estimates for operations (OPS) costs are included in Section 31, Mission Support.

30.8 Summary

Modernizing the NAS will have predictable and unpredictable impacts on the environment. Many of the modernization efforts will have the benefit of reducing pollution and gaseous emissions. Replacing the aging NAS infrastructure, however, poses numerous problems in terms of avoiding surface pollution, as well as unknown costs for rehabilitating contaminated sites scheduled for decommissioning or replacement.

The Federal Energy Policy Act and Executive Order 12902 require the FAA to meet certain energy and water conservation goals. The goals are to reduce cost, improve the environment, and minimize the use of petroleum-based fuels in FAA buildings and facilities. The FAA is required, among other things, to reduce energy consumption in FY00 by 20 percent from FY85 levels and in FY05 by 30 percent from FY85 levels.

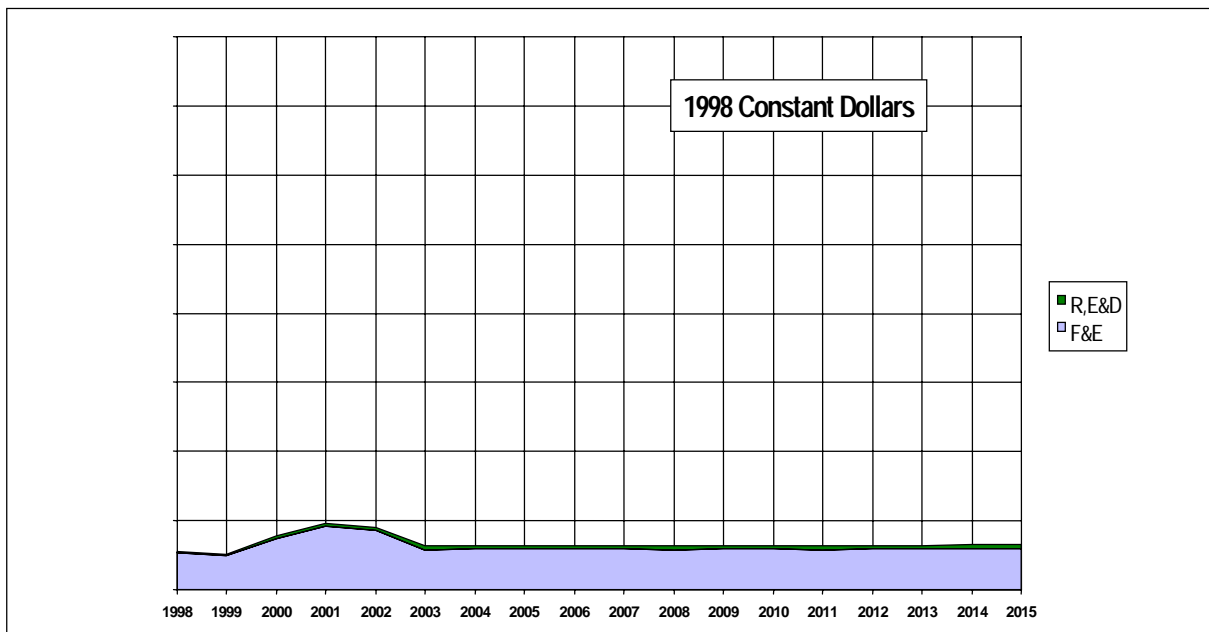


Figure 30-1. Estimated Environment and Energy Costs

